

sufficient mixing and sufficient residence time at sufficient temperature to convert undesirable flue gas components to collectible particulates upstream of a particulate control device (PCD); and ([b]c) collecting said particulates in said particulate control device, said particulate control device [includes, but is not limited to,] including a PCD process selected from the group consisting of electrostatic [precipitators] precipitation (dry or wet), filtration, cyclones, and [conventional] wet [scrubbers] scrubbing.

16. A method for removing undesirable flue gas components according to claim 15, [wherein] further comprising:

recycling unreacted flue gas conversion reagents [are recycled] to increase reagent utilization, wherein [said recycle] the rate of recycling exceeds 5% by weight of [the] collected flyash.

17. A method for removing undesirable flue gas components according to claim 15, [wherein] further comprising:

regenerating and reusing spent flue gas conversion reagents [are regenerated and reused, wherein] using a process selected from the group consisting of hydration, precipitation, and other unit operations;

[said regeneration] wherein the rate of regeneration exceeds 70% by weight of [the] collected flyash, and less than 30% of the collected flyash is disposed as a purge (or blowdown) stream, containing high concentration of impurities. [Said regeneration method includes, but is not limited to, a process from the group of hydration, precipitation, and other unit operations.]

18. A method for removing undesirable flue gas components according to claim [15] 17, [wherein] further comprising:

using the purge stream from the regeneration process [is used] as a resource for valuable metals[, wherein]; and

extracting and purifying said valuable metals [are extracted and purified].

19. A process of producing coke, said process comprising the steps:

(a) Providing a coke precursor material derived from fossil carbonaceous origin; and

(b) Subjecting said coke precursor material to a thermal cracking process for sufficient time and at sufficient temperature and under sufficient pressure so as to promote the production of sponge coke and to produce a coke product having volatile combustible materials (VCMs) present in an amount in the range from about 13% to about 50% by weight[.];

wherein said coke is comprised of sponge coke in an amount in the range of about 40% to 100% by weight.

22. A process according to claim 19 [further comprising altering the crystalline structure of said coke product to promote production of essentially sponge coke with] wherein said coke has sufficient porosity and sufficient physical [&] and chemical properties to provide low to medium grades of adsorption quality carbon.

73. A method for producing energy, said method comprising combusting a fuel, said fuel comprising coke, said coke comprising [essentially high porosity] sponge coke in an amount in the range from about 40% to 100% by weight and